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Research in microteaching at the Far West Laboratory for Educational Research and Development resulted in a self-contained instructional package labeled the minicourse. Designed to train the teacher in a microteaching situation with self-evaluation only (providing the feedback normally assigned to a supervisor through evaluation forms), the minicourse consists of a product (containing instructional films, handbooks, and evaluation forms), employs the process of video-taped microteaching sessions, and is organized into four to six sequences of a three-day instructional plan (in which the student is familarized with specific teaching skills through the product, evaluates his performance from video tape recordings, and reteaches). Each minicourse is provided with a specific behavioral objective which is realized through the means of a clearly presented overt teaching skill. In a skill discrimination check to determine evaluative ability, students classify behaviors from short film clips and a model lesson, and model their behavior after that of a model teacher. Two basic reasons account for the success of this program: reinforcement derived from seeing oneself on video tape and reinforcement derived from the emphasis on and perception of student behavior change in association with increased proficiency in a skill. (SM)

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MINICOURSE: THEORY AND STRATEGY

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A paper presented as part of the symposium:
"MICROTEACHING AND MINICOURSES: RATIONALES
AND CURRENT RESEARCH"

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Teacher Education Program

MINICOURSE: THEORY AND STRATEGY[1]

by Philip Langer, Senior Program Associate

This symposium concerns itself with a new set of procedures for training teachers. Before going any further, let me point out that the present state of the art can best be illustrated by an incident which occurred during Christmas shopping. Passing by a health food store, a book caught my eye. It was entitled, Faith, Love and Seaweed. I turned to my wife and noted that the title was so appropriate to educational technology as to be terrifying.

Today we hope to present you with visions other than seaweed. We're going to talk about a process known as microteaching. We're also going to talk about a product called the minicourse. In order to avoid confusion, let us define precisely what we mean by each of these.

The process, microteaching, is a teacher training technique developed at Stanford University, based around the use of the videotape recorder (Allen, 1966). Basically, a student intern is given instruction in a specific teaching skill. She then prepares a brief lesson emphasizing the skill and gives this lesson to a small group of pupils. Simultaneously her performance is videotaped. After the lesson, she sits down with a supervisor to critique the videotape

1. The work reported herein was performed pursuant to a contract with the United States Department of Health, Education and Welfare, Office of Education.

of her performance. The results, while not overwhelming, show promise in terms of training teachers (Acheson, 1964).

Following this lead, the Far West Laboratory for Educational Research and Development undertook further development of the micro-teaching technique. Our result is a self-contained instructional package based around the use of the VTR. The package, dubbed the minicourse, is designed to train the teacher without any supervisor input.

Alright then, specifically what is the minicourse? First of all, it is a product containing instructional films, handbooks, and evaluations forms. Second, it employs a process known as microteaching. Third, it is an organization of product and process known as the instructional sequence. To break the monotony of order, let's discuss the instructional sequence first. Usually, it is a three day affair.

As is indicated just before, the teacher is provided with instructional materials, both on film, and written. On the first day the teacher views an instructional film which describes and illustrates one or more specific teaching skills. She also views a model film in which these skills are demonstrated by a model teacher. In addition she reads about those skills in a handbook. She then plans a five to ten minute lesson which she will give with five or six pupils the next day emphasizing the skills previously discussed. The next day, she gives this lesson to a small group of pupils, and simlutaneously videotapes this performance. This is called the microteach lesson. She immediately critiques her behavior using

previously prepared objective evaluation forms. On the basis of her performance, she replans the lesson. On the following day, she conducts and critiques a second small group lesson which is called the reteach lesson.

To recapitulate, the three day sequence consists of learning about the skill, microteaching, and reteaching. A minicourse usually consists of four to six such sequences.

Oh well, it's lunch time, and everybody has his own idea of a training program. There are a great many teacher training programs available. But it's equally true that most of them can present no evidence that they make the slightest difference in how a teacher teaches. One important reason is that they do not have specific, operational objectives in mind. Assuming that they do, they rarely, if ever, provide the specific inputs to obtain these outcomes. Finally, evaluation seems to be a naughty word. In other words, the researcher cites his good intentions, carries on some non-structured activities, administers the Dogmatism Scale and whatever else he can find in the counseling office, and prays for the best.

Let's see how we avoid these problems. There are several procedures which must be taken. First of all, the teacher skills are described in operational terms. These are our outcomes. Appendix A gives you a set from one of our courses.

There is no inferential activity required on the part of the observing teacher to learn the specific skill. Frankly, if the supposed skill is a covert activity, which cannot be made overt, we

drop it. Aside from our commitment to operationalism, we avoid the error of talking about behavior and inferential constructs as if they were one and the same. In short, we do not count instances of both redirection and clinical repression.

Second, and this is of equal importance, we insist that output is anticipated by input. This input-output relationship is an absolute must in our minicourse strategy. I don't know how many programs I've seen which consist of some vague and undifferentiated activities which the researcher prayerfully assumes will achieve some as yet unforseen results. This is useless in trying to set up a valid training program. In the minicourse, behavioral development is accounted for by both the instructional materials and microteaching activities. In sum, we deal with a set of operationally defined outcomes which in turn are developed through specific inputs.

Let's take a look now at these specific inputs, starting first with the instructional materials. As indicated earlier, these materials are on film and in handbooks. Our initial minicourse instructional film materials consisted of narration supplemented with clips illustrating the specific behaviors. There was also a model lesson displaying the skills. The first course proved quite effective, but from a behavioral engineering point of view left much to be desired. The presentation was essentially a lecture with audio-visual materials added. True, it was significantly better than the usual college lecture, but nonetheless there was much of the usual passive teacher behavior--sitting and listening.

In short, it did not make optimum use of the VTR. In at least one course now under development, the materials are so arranged that the teacher actively responds to the materials by classifying events, engaging in simple simulation activities, etc. She moves back and forth between the handbook and the VTR. These activities should help shape behavior which is originally emitted at a low level. Equally important, the teacher gets immediate feedback from the instructional materials. This type of instructional organization may prove much more efficient in terms of learning, although it is much more difficult to develop.

What we are attacking here is a very significant problem for us. In the minicourse films we illustrate a specific skill through narration and clips. The stimulus characteristics of the materials are critical because from these examples the teacher will make certain generalizations and discriminations concerning her own behavior.

We provide feedback to the teachers during their microteach and reteach lessons through evaluation forms. However, there is no supervisor present. Our examples must enable the teacher to validly classify her ongoing behavior as an example of x or not as an example of x. This is why the input stimulus characteristics are important.

Frankly, you'd be amazed at the number of training films I've looked at which have never taken this into consideration. Often they have several complex behaviors going on and leave it to the teacher to try to puzzle out what is happening. The stimulus character-

istics of the behavior we are illustrating must stand out clearly. In short, through our use of specific examples we determine the shape of the generalization curve.

At present there are two major checks of our discrimination training. The first consists of asking teachers at the end of the instructional sequence to classify the behaviors that we illustrate in short clips. The second check occurs in the model tape.

The model tape follows the instructional sequence and serves essentially two functions. The model lesson consists of a five to ten minute teaching sequence, in which the skills are embedded as part of the ongoing lesson. FIrst, we alert the viewing teacher to certain behavioral sequences and request that they identify them. They classify the ongoing behavior from a checklist listing possible alternatives.

Second, we ask the teacher to model her behavior after that of the model teacher. The underlying rationale for this is tied somewhat to Bandura's research (Bandura, 1965a; 1965b), although the modeling procedure itself is based on Orme's (1966) study at Stanford. Interestingly enough; the model tape is not regularly used in the Stanford microteaching procedures.

These two functions are now undergoing further investigation. First, instead of asking the teacher to select the appropriate behavior from a list of alternatives, we are undertaking a study in which the teacher constructs the response. This will give us a little clearer picture of what is going on, since difficulties here will indicate that we have not defined the skill as clearly as we think we have.

The next question deals with the modeling function. We must determine if the classification and modeling functions are incompatible: that is, are we asking the teacher to do too much. For example, by interrupting the teacher's behavior for purposes of classification we are breaking up the chaining sequences. This raises new questions on what is being learned.

Another product component in the instructional sequence is the teacher handbook. The handbooks used so far in the various courses have been constructed in a number of ways. For one minicourse, the handbook was integrated loosely with the filmed materials, and followed an operant approach. In essence, it provided the teacher with an alternative to the film materials. Another course uses more or less a workbook type, while the third represents a cookbook approach. We're still experimenting.

The last product component is the evaluation forms for the microteaching and reteaching lessons. These are carefully developed throughout our testing program. The emphasis is on scoring and quantification which permits the teacher to make a systematic interpretation of the results. See Appendix B for a sample evaluation form. The forms are designed to permit the teacher to systematically record her behavior and then to interpret the results. In essence, the forms provide the feedback normally assigned to a supervisor. In fact, we think the forms do a better job in terms of objectivity and completeness.

Now let's move on to the activities in the minicourse. The microteaching and reteaching procedures present have some unresolved

problems. For example, we instruct teachers as to the length of the lesson, the types of pupils to use etc. In effect we set up the conditions under which microteaching is conducted. However, we are still as yet uncertain as to the relative merits of different conditions.

In addition, we ask teachers to both microteach and reteach. This raises such questions as to the circumstances under which the reteach lesson can be omitted. This in turn raises issues of behavioral criteria and control during the microteaching activities. Really, there's lots to be done.

Well, we've gone through the minicourse products, activities, and organization. The next issue of direct concern to us is why the minicourse works. The two reasons that I shall suggest are somewhat peculiar to me. My more cognitively oriented colleagues might not agree.

First of all, everyone likes to see themselves on TV. Don't forget, the teacher observes her behavior on a monitor which is quite similar to the television set at home. If you don't think this is critical, take a look at those TV shows where they pan out into the audience. In short, seeing oneself on TV is a reinforcing event. The numerous microteaching activities can be considered as enabling behaviors (Skinner, 1953) preparatory to viewing oneself on the monitor.

But the issue is not simply resolved by saying that the course is effective because one is seeing oneself on TV. Remember that all along, the teacher has been exposed to examples of "good" behavior (which is true of course of many training courses.) What is different, is that

the teacher critiques her own performance. More technically, the teacher's own behavior becomes the discriminative stimulus leading to change.

The sequence is critical. First, the teacher is shown what is good classroom behavior through the instructional products. She observes her own behavior during the microteaching activities and subsequently alters her teaching to match the model. All this figuratively translated means: "Who wants to look bad on TV?"

The evidence is there. For example, we have noticed that many teachers tend to somewhat slavishly follow the behavior of the model teachers. In addition, women teachers want to go out and spend a fortune in clothes, etc., as soon as they know we are going to tape them for a sample of their pre-course behavior. All in all, it's an interesting phenomenon.

The second reason for the minicourse effectiveness is based on student behavior. I think I can best explain the rationale here by asking the question: "What happens once the minicourse is over and the monitor is no longer there?" The course is gone--now what happens? As Dr. Borg will point our shortly, the behavior persists. If so, why?

First of all, throughout the instructional sequences the desired pupil behavior which accompanies the teaching skill is constantly emphasized. The teacher is instructed to pay close attention to the pupils. In addition, as she microteaches and reteaches she observes the pupil changes accompanying increased proficiency in a particular skill. In sum, a contingency is established: improvement in her teaching skills leads to better pupil behavior (a consequence).

The better pupil behavior is a reinforcing event in the sequence. Moreover, this relationship is established on the basis of ongoing events in her classroom. It's what's happening. Contrariwise, the course is not likely to be effective with teachers who couldn't care less.

Because improved pupil performance exerts a controlling influence over teacher performance, we are now investigating a minicourse procedure aimed directly at the pupil. By instructing the pupils in what is expected of them we provide the teachers with constant reminders about their own behavior.

And finally, what does it all mean? One can argue that the road to hell is paved with good intentions. A great many training programs have literally gone down the tube, because no one undertook a systematic analysis of the program. What frequently happens is that somebody comes up with a training program which achieves success in terms of the stated objectives. The result is the bandwagon phenomenon. Everybody uses the same program without regard to the program itself or the conditions under which it is used. This is nothing more or less than superstitious behavior, sort of "I don't know what works so we'll do everything just the same way." In our developmental program we are committed to an analysis of the parameters underlying success and failure in the minicourse. These twenty-seven steps are given in Appendix C, and I suggest that you study them at your leisure

To sum it all up, through a combination of products and processes which we have called the minicourse, we may be on the verge of a major breakthrough in teacher training.

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APPENDIX A

Minicourse 3 - Effective Questioning in a High School Class Discussion

OBJECTIVES AND TENTATIVE SEQUENCE

PRACTICE LESSON

Objectives: To acquire familiarity with minicourse procedures.
To distribute student participation evenly.
Specific behaviors: Call on non-volunteers as well as volunteers.

LESSON 1

Objectives: To reduce teacher behaviors that interfere with class discussion.
Specific behaviors: Repeating own questions.
Answering own questions.
Repeating student's answers.

LESSON 2

Objectives: To probe for more thoughful responses from students.
Specific behaviors: Prompting
Seeking further clarification.

LESSON 3

Objectives: To increase teachers' use of higher cognitive questions.
Specific behaviors: Frame comprehension questions.
Use prompting, further clarification, and redirection.

LESSON 4

Objectives: To increase teachers' use of higher cognitive questions.
To elicit thoughtful responses to these questions.
Specific behaviors: Frame analysis questions
Use prompting, further clarification, and redirection.

LESSON 5

Objectives: To increase teachers' use of higher cognitive questions.
To elicit thoughtful responses to these questions.
Specific behaviors: Frame evaluation questions.
Use prompting, further clarification, and redirection.

APPENDIX B - SAMPLE

TEACHER SELF-EVALUATION FORM

MICROTEACH 3

NOTE: READ ENTIRE FORM BEFORE YOU START YOUR REPLAY.

Purpose: to evaluate your use of comprehension questions in class discussion.

VTR Operations: Start tape at beginning, stop after each of your questions and record; stop after each total response and record.

Time Sampled: Entire tape.

Procedures for Recording Observations:

1. After each primary question (Do not score probing questions.) indicate by checking in the chart below whether the question asked for KNOWLEDGE, COMPREHENSION or OTHER. OTHER refers to questions of a higher order than comprehension.

QUESTION	KNOWLEDGE	COMPREHENSION	OTHER
1			
2			
3			
4			
5			
6			
7			

2. After each response to your main question indicate whether the total response met the standard which you set in your lesson plan. (A total response includes all responses to the main question. This would include responses to probing questions and to redirection.)

QUESTION	MET STANDARD	DID NOT MEET STANDARD
1		
2		
3		
4		

QUESTION	MET STANDARD	DID NOT MEET STANDARD
5		
6		
7		
8		

Comments/Suggestions_____

_____

3. Could you have framed the questions in a different way to get a more satisfactory response? (This should provide the basis for replanning your lesson for Reteach 3.)

_____

_____

_____

_____

Directions: Replan this lesson using the lesson plan form on page 70.

APPENDIX C

THE 27 STEPS IN THE DEVELOPMENT PROGRAM

Procedures

The procedures established to implement the program strategy for the Teacher Education Program are an outgrowth of the Laboratory-wide research and development strategy. At the present time, the Teacher Education Program has established 27 specific steps. The number of steps actually executed is, of course, dependent on the nature of the product being developed. They are as follows:

A. Research and Information Collecting

1. Review literature and prepare report.

B. Planning

2. State the specific objectives or behavioral changes to be achieved and plan a tentative course sequence.

C. Develop Preliminary Form of Product

3. Prepare scripts for the instructional lessons.
4. Prepare teacher handbook and evaluation forms for use in the microteach evaluation.
5. Prepare instrucitonal tapes; record, edit and dub.
6. Prepare model tapes; record, edit, and dub.

D. Preliminary Field Testing

7. Conduct preliminary field test in 1 to 3 schools, using 4 to 12 teachers.
8. Evaluate results of field test.

E. Main Product Revision

9. Revise scripts based on preliminary field test results.
10. Revise handbook and evaluation forms and print for main field test.
11. Revise instructional tapes; record, edit, and dub.
12. Revise model tapes; record, edit, and dub.
13. Prepare follow-up package to be used by teachers during nine months completion of the course.

F. Main Field Testing

14. Conduct field test using a sample of 30-75 teachers.
15. Collect pre-course tapes and post-course tapes of the classroom behavior of teachers participating.
16. Collect delayed post-course tapes of participating teachers from four to six months after completing the course.
17. Evaluate main field-test results to determine if the course meets the specific behavioral criteria established for the course.
18. Distribute the evaluate follow-up package.

G. Operational Product Revision

19. Revise course for operational field test.
20. Prepare complete implementation package including all material needed by a school to conduct the course without outside help.

H. Operational Field Testing

21. Train operational test coordinators.
22. Conduct operational field test.
23. Evaluate operational field test results.

I. Final Product Revisions.

24. Make final revisions in the minicourse prior to mass distribution of the course for operational inservice use in the schools.

J. Dissemination and Distribution

25. Disseminate and distribute course for use.

K. Report Preparation

26. Prepare and idstribute research and development report, giving results of all field testing of the minicourse.

L. Implementation

27. Implement course in the schools.